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EPR study of ordered Al2O3-based aerogel

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Abstract

© 2015, Pleiades Publishing, Inc. Samples of oriented aerogel based on aluminum oxide are studied by the electron paramagnetic resonance (EPR) technique under steady-state and pulse conditions. At least two types of paramagnetic centers interacting with Al nuclei on the surface of aerogel are revealed. Their spectra are characterized by the presence or absence of superhyperfine structure in the EPR spectra, respectively. The X-ray irradiation at room temperature gives rise to the formation of additional long-lived paramagnetic centers of the second kind. Their characteristic decay times for the “fast” and “slow” processes are determined. The interaction of induced paramagnetic centers with protons located on the surface of aerogel is revealed.

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